

## Essay 2

**The topic of this essay is** the properties of cognitive systems that are composed of two or more persons in interaction with one another.

The responses to the October 2007 fires in San Diego County involved many aspects of distributed cognition. The official responders (local, state, and national organizations) faced the problem of gathering accurate information about the fires, about available resources, and about risks, and then using that information to control the allocation of fire fighting resources. As members of the local population, most of us were also involved in information gathering and decision making concerning the safety of our own homes and families.

Focus on some aspect of the response to the recent fires in San Diego County. You may use your own experiences as a source of material. You may also use information that appeared in the news media, on phone conversations, in weblogs, etc. In order to explain the cognitive properties of the fire response system, *you must link observed events to the concepts presented in the class*. The key to writing a good essay on this topic will be to be specific about the details of the observed phenomena and to make explicit the links between the phenomena and the concepts from the course.

Remember, the key to understanding the cognitive properties of socially distributed cognition is determining what information goes where when and in what form. Your paper should document patterns of the movement of information.

The following is a list of just some of the many concepts you may be able to see in the phenomena you observed.

- Distribution of knowledge
- Specialization of knowledge.
- Coordinating distributed expertise, interactions among specialists
- Producing and reproducing expertise
- Hierarchies, and chain of command
- Distribution of access to information
- Redundant storage and processing
- Robustness through redundant representation and processing
- Redundant readbacks for error checking
- Shared expectations
- Intersubjectively shared understanding of the task and filling in for other agents.
- Distribution of cognitive effort through time - amortization of complexity
- Transformation of information from one sensory medium to another in order to prevent overload of one of the senses.
- Cognitive activity conducted in parallel
- Bottom-up and top-down processes
- Buffers and demons
- Agents waiting for conditions that trigger actions.
- Task decomposition to control complexity (modularity), limiting complexity of input encountered by any individual
- Filtering information to reduce processing costs
- Organizing activity on the basis of social relations rather than domain content. (Take care of syntax and semantics will take care of itself. Take care of social relations, and syntax will take care of itself.)
- Robust adaptation or gradual reduction in capacity rather than catastrophic failure.